

THURSDAY, NOVEMBER 18, 1875

MR. GLADSTONE AT GREENWICH

WE may surely regard it as a hopeful sign of progress that a whole page of the *Times*, as well as of other daily papers, of last Friday was practically devoted to the discussion of matters connected with Science and Art. When we find the daily papers giving so great prominence to these subjects, and when men of such position and mark as Prince Leopold, Mr. Gladstone, and the Lord Chief Justice, take what is evidently a genuine interest in the progress of science and art education among the lower classes, it seems quite safe to infer that this movement has at last taken a prominent and important place in the everyday life of the country.

Prince Leopold, in his address at Oxford, showed that he had taken some pains to become acquainted with the latest statistics of the Science and Art classes. The discrepancy between Prince Leopold's statistics and those of Mr. Gladstone has been commented upon in the *Times*. It would appear from an examination of the last Report of the Science and Art Department, however, that the figures which Prince Leopold gives for the number of students under instruction in science are probably the *number of papers worked* at the last May examinations. This, possibly, is an error in reporting. Mr. Gladstone, on the other hand, gives the right number—"about 48,000 $\frac{1}{4}$ "—of the students under instruction *last January*; a different number, of course, to that in May 1874, when it was 53,050, or in May 1875, which has not yet been published, as far as we are aware. But in some way he has arrived at, or been furnished with, a wrong total for the number of Art students. This should be 54,800 odd, irrespective of the scholars in Elementary Day Schools. At the same time it is gratifying that a man like Mr. Gladstone should think it worth his while to take an interest in the matter at all, but when he does determine to think about it, the least he can do is to inform himself correctly as to statistics.

Mr. Gladstone set himself almost entirely to impress upon his audience the value of an education in the principles and practice of art; he attempted to show that really artistic handiwork had not only a refining, elevating influence even on the workman himself, but that it answered the requirement of utility in the best sense of the term. To his advocacy of the introduction of artistic taste into the commonest manufactures we can have no possible objection, but we distinctly demur to the ground on which he seems to have based the prominence that he gave it in his address. He found—wrongly, it appears—from the statistics that the proportion of students attending the Science classes was considerably larger than that of those who are attending the Art classes. According to the latest statistics this excess of Science over Art students is shown not to exist, and the inference that Science is getting more than its due share of attention, and that the claims of Art require special advocacy as being neglected, seems to us unwarranted on several grounds. The truth is the Art classes were established for many years before the Science classes, and the fact that there has been such a rush upon the latter simply proves that they meet a wider and deeper want than do the

former; that, in short, the nation feels that it stands more urgently in need of science at present than of art.

We infer, moreover, from what Mr. Gladstone said, that he thinks the practical application of science ought to be endowed in preference to abstract scientific investigation and education in scientific principles. But is it not much more rational and really practical that the men who are getting their education at these Science and Art classes should be educated in the main principles and leading facts of science before they are taught how to apply them? How is the best work likely to be got out of a man? Is it by teaching him the practice of a few traditional rules, incapable of expansion, and which have no meaning for him; or by educating him thoroughly in the scientific principles and data on which his handicraft is founded, and then leaving him to learn in the workshop how these are applied in practice? One might as well expect a carpenter to make a workman-like chair or table before he has learned to use the plane or saw, as expect the best work to be produced by the former course. The principles or laws of science are comparatively few; their applications are endless.

The student who has an accurate knowledge of principles will readily understand the applications. One school will, as it were, fit him out with all that is necessary for all industrial progress. To teach the applied sciences on the other hand requires a special school for all the various possible permutations and combinations that may be rung on the general principles.

By looking to general science, again, the Government avoids the difficulties which must necessarily accompany, with all the fluctuations of trade, any attempt to teach applied science except in some very general forms. The fact is that the practical applications of science bring their own reward, and need no extraneous encouragement; instruction and invention in them may very well and without the least hardship be left to those whose pockets they fill. Art receives ample encouragement, and is well rewarded by the nation; let but an artist in any department show himself capable of producing good work, and he will soon find that both the Government and private individuals have plenty of rewards to bestow upon him. Science, on the other hand, receives not a penny in the way of assistance or reward, and yet the scientific investigator is the nation's servant and greatest benefactor. Pure scientific research is at present, like virtue, its own reward; the man who devotes himself to such research, unless he has some other means of gaining a livelihood, is likely enough to starve for all the help he will get from his country; and yet, as it has been shown over and over again, our country's prosperity, the progress of nearly all our industries, and even the very existence of many of them, are dependent on the discoveries of the scientific investigator who pursues his research on purely scientific principles, and with no practical end whatever in view. Our country has got at least as much glory, and we venture to think more practical benefit, from achievements in the region of pure science, as from all that has been accomplished in the domain of art, and yet no helping hand is held out to those who are able and willing to do their country the highest service, but cannot, because they must drudge for a living. The domain of science is every day becoming

more and more extended, her methods are becoming more and more complicated, and her instruments more and more expensive; in almost every department paths are being opened up which, if pursued to their end, would certainly lead to discoveries of vital importance to the best welfare and prosperity of the nation. Our public men are continually telling us that we are being outstripped by continental nations in fields which used to be peculiarly our own, and that simply because abroad every encouragement is given to scientific research, while here its existence is either ignored or it is regarded as a mere pastime. We can only think that Mr. Gladstone must have been imperfectly informed, or that he felt himself bound for the occasion to assume the position of special pleader on behalf of Art, which really can take very good care of herself.

We are grateful, however, for the unmistakable manner in which he referred to the City Companies. He put the case exactly as it ought to be put, and did not in the least exaggerate the crying scandal. Their pharisaical trumpeting of the pittances they dole out in the way of charity blinds very few, we should think, to the disgraceful way in which they discharge the stewardship of the enormous funds committed to their trust. What are these eleemosynary pittances compared to the sums they lavish yearly on their ponderous entertainments, relics of long past generations, when men were some stages nearer the lower animals than they are now, but which are now meaningless and out of date? These Corporations, though there are some wide-awake, practical, and, we must believe, advanced and cultivated men among them, seem to be quite unconscious of their lethargic, antiquated, and even dangerous position. We say "dangerous," for it is high time they should know that if they do not wake up out of their lethargy, and set their own house in order, they must very soon be awakened by a shock from without. The country cannot much longer forbear calling them to give an account of their valuable stewardship, and a sorry account, we fear they must render. It cannot be tolerated that while the advancement of the highest interests of the country is most seriously crippled for want of necessary means, those funds which were left by our benevolent predecessors in trust for the country's good, should rust in a useless napkin or be drawn upon only for the sensual gratification of those who foolishly fancy themselves their irresponsible trustees.

CHAMBERS'S ENCYCLOPÆDIA

Chambers's Encyclopædia, a Dictionary of Useful Knowledge for the People. Illustrated with Maps and numerous Wood Engravings. Revised Edition. Ten vols. (Edinburgh and London: W. and R. Chambers, 1874.)

WHEN the history of the English people during the present century comes to be written by some future Green—or it may be by the present one—the name of the publishing firm of W. and R. Chambers must be referred to with honour as having had a considerable share in fostering the great intellectual awakening among the people which was initiated in the earlier part of the century. By means of their *Journal*, which still maintains an honourable place among popular serials,

their *Information*, their *Miscellany*, and other similar publications, they supplied the growing appetite of the people for useful knowledge with healthy and invigorating food, which at the same time stimulated a craving for more. We believe that in this way the Messrs. Chambers have done much to create the general want among the middle and lower classes which is now being gradually supplied by more organised and systematic means of instruction and culture. They were also among the first, if not the first, to publish for the use of schools a carefully compiled and almost complete series of text-books of science, a series which held its place for a long time, though no doubt now somewhat out of date, if not largely out of print. The crowning effort of this firm to provide "the people" with the means of obtaining useful and accurate information is no doubt to be seen in the "Encyclopædia" which they have brought out under the editorial care of Dr. Andrew Findlater.

Previous to the publication of this "Encyclopædia," which began to be issued in 1860, and to go no farther back than the present century, a large number of books of reference of this class had been published both in England and Scotland, but they were all works of a ponderous size and constructed pretty much after the plan of the "Britannica," consisting mainly of long treatises on the various departments of knowledge. The Messrs. Chambers, however, took as their model Brockhaus's well-known "Conversations-Lexicon," and have broken down, as they express it, the various masses of systematic knowledge, to as great a degree as is consistent with the separate explanation of the several fragments. No doubt this is the only satisfactory plan for a dictionary of universal information, which, first of all, ought to be a handy reference book. It is for this very reason that the alphabetical arrangement is used, and we do not see that much is gained by such an arrangement, if an encyclopædia is to consist of a collection of exhaustive treatises, requiring an enormous index to make them consultable. As a handy book of reference, then, the plan of "Chambers's Encyclopædia" is all that could be desired. Of course there is a limit to the cutting down of subjects for purposes of reference, and Dr. Findlater has shown great shrewdness and common sense in fixing this limit. Perhaps some might desire an encyclopædia with a more copious vocabulary, with a fuller list of subjects, more condensed information, and in every case where practicable a copious bibliography; but for the great bulk of the people, the encyclopædia before us will be found to answer with singular completeness all the purposes of a book of reference. Between the body of the work and the copious index there is little that any ordinary man will want to inquire about which he will not find information upon here, and that speedily. In many cases references to special authorities furnish the means of pursuing a subject further.

As to the quality of the work we can speak with almost unqualified approval. We have said that the "Encyclopædia" is modelled after the German "Conversations-Lexicon." Indeed, the Preface states that it was at first intended to translate almost literally the German work, but that after the work of translating had been gone on with for some time, it was seen that an encyclopædia adapted to the English public would have to be constructed on an independent basis. This has